

# **Bioink Materials for Biomedical Applications**

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## **Abstract**

Tissue engineering and regenerative medicine has emerged as an innovative scientific field that focuses on developing new approaches to repairing cells, tissues and organs. Over the years, various engineering strategies have been developed to build functional tissues and organs for clinical applications. In recent years, 3D bioprinting has gained an enormous attention as an innovative tool that enables construction of complex 3D tissue structures for translational applications. This developing field promises to revolutionize the field of medicine addressing the dire need for tissues and organs suitable for surgical reconstruction. However, further development is necessary to be able to bring this technology to the clinic. This session will discuss various approaches to building complex tissue structures using the 3D printing technology. Development efforts in the bioink materials unique to building 3D printed structures for biomedical applications will also be discussed.

## **Biography**

Dr. Yoo is Professor and Associate Director of the Wake Forest Institute for Regenerative Medicine (WFIRM), with a cross-appointment to the Departments of Urology, Physiology and Pharmacology, and the Virginia Tech-Wake Forest School of Biomedical Engineering and Sciences. Dr. Yoo's research efforts have been directed toward the clinical translation of tissue engineering technologies and cell-based therapies. Dr. Yoo's background in cell biology and medicine has facilitated the transfer of several cell-based technologies from the bench-top to the bedside. A few notable examples of successful clinical translation include the bladder, urethra, vagina, and muscle cell therapy for incontinence. Dr. Yoo has been a lead scientist in the bioprinting program at WFIRM and has been instrumental in developing skin bioprinting and integrated tissue and organ printing (ITOP) systems for preclinical and clinical applications.

